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California Energy Commissioners and Air Resources Board
Workshop participants
In care of Lorraine White, CEC

Re: Summary of comments after October 16, Alternative Transportation Fuels Plan Workshop, 06-AFP-1

Greetings Commission members and participants:

Overall, I believe the workshop was excellent, with comprehensive presentations by Tiax, and excellent participation from key groups in the Energy business community, providing many important issues to consider. Here are some additional key issues I would like to raise;

1) Most of the alternatives presented for significant near term production of alternative fuels rely on Natural Gas (hydrogen, plugins, synthesis, etc). We have very small reserves in the US and Canada (note DOE Nat Gas report). Our future plans to import Liquefied Natural Gas from over-seas will make forecasting price and availability extremely difficult as it is dependent on international political stability, and worldwide sky-rocketing demand for consumers like "China Rising" (note they are planning many LGN seaports, per DOE Nat Gas report). Presently the US is importing 15% of Nat gas, mostly from Canada, and this is destined to rise rapidly by importing LNG. In view of California's high dependence on Nat Gas, it would be foolish to rely too much on the DOE price forecast., and availability, as it appears is being done.
2) I do not understand how the Nat-gas consumption for California can be as flat as presented since 1997 (Tiax, page 2-4). I will inquire from the DOE source sited, as I do not believe the numbers. Do I understand correctly that the CEC does not keep track of California's energy imports/exports?
3) Hydrogen: Thirty years ago when we studied Hydrogen at UC Davis/ LLL, it was incredibly impractical, and therefore ultimately inefficient. I agree with one commenter (women's league of voters?) we need a reality check, to counter the "zealots" as it does not appear any easier 30 years later. If we did have a source for Hydrogen that was not fossil fuel based, why would we not instead synthesize a more practical liquid fuel and in the process extract CO2 from the atmosphere, yielding a net zero in CO2 emission, per Dr. Olah at the Loker Institute (USC)? Viability would be higher if we were building new nuclear plants in California.

4) Biofuels; I agree with some commenters that we need to pursue all alternatives if we expect to survive. Biofuels can make a contribution, but in California production is unlikely to be a significant percentage of today's vehicle fuel usage rate. Although ethanol has worked great for Brazil using sugar cane, California is a completely different climate and geography, in particular, we have a shortage of water. Why would we import corn as a feedstock from the mid-west instead of buying an ethanol plant near the source, and importing the final products, particularly in view of the poor yield of corn ethanol? Subsidies are not an energy efficient reason for decision-making. We had an excellent panel presentation at the Commonwealth Club of San Francisco last week on Biofuels, and in fact the message sent was; no clear plan or accurate assessment of potential, and more investigation required. (side note; the military is also interested in green jet fuel. They bought 100,000 gallons for $20 per gallon to experiment with; source, Aviation Week)
5) Plug-in Hybrids/cars; the battery: A major omission in the Full Fuel Cycle Analysis presented by Tiax is the energy that is invested in manufacturing the hardware, i.e. the vehicle, which has a finite life. After free market stabilization, there is a direct relationship between the cost of something and the cost of the energy that was required to produce it, whether it is raw material mining, production energy, or production labor. This fact is a MAJOR issue regarding batteries for electric cars, and has not been included in most analyses that have been done. The battery companies remain very secretive, but for the moment a battery for a light duty car to go 30 miles is about $20,000, and is expected to last about 2000 "out of electricity" cycles. That calculates out to a $10 dollar battery (manufacturing energy) reserve fund for 30 miles of travel. I would like to ask the commenter's with stellar remarks about the electric RAV-4 in service to provide some real in-field data about life and efficiency, particularly as the NiMD battery in this car is HEAVY. (note, some Prius retrofit companies, Edrive for one, are quoting much more favorable numbers, but the performance numbers are not in accordance with published battery data.
6) Plug-in hybrids; the fuel: The decision to plug in a hybrid or not is a decision to use more IMPORTED oil, or more IMPORTED Nat gas, which is the only near term option for new electric generation in California. Both will continue to have availability and price instability for the political reasons noted above. If Nat Gas ends up being the preferred fuel, then the efficiency analysis needs to include 5) above, and be compared to a CNG hybrid car, including conversion efficiencies, transmission losses, the battery weight penalty (an exponential function), and all taxes/subsidies normalized. It has already been suggested there is little gain in real efficiency, excluding the battery life contribution (EPRI PHEV report). Again, the situation would be more favorable if we were building new Nuclear plants in California.
7) Plug-in hybrids; load demand: The impression that the plug-in advocates are giving is that electric power is almost free at night. It is true we have had serious load balancing problem in California, highlighted in this summer's heat storm, where daily load variation was 2 to 1 as presented in the Sept 18 CEC/PUC Commission meeting. There are two solutions to level electric load that need to be

implemented, irrespective of plugins; First, install multirate time dependent meters for everyone, which is already in the plan. Second, pursue non-electric solar air conditioning,/heating a perfect solution for sunny California (China is doing this, and we are behind).

8) The detailed Tiax report I have several questions about, but for brevity I will for the moment limit my remarks to a quote from an EPRI source that stated ultimately a PHEV vehicle should be cheaper than a conventional gas-vehicle. Whoever said that cannot possibly have examined the complexity of a Prius, the Gold Standard, nor participated in the development of such a product, that was required to meet all the expectations of reliability, life, drivability, useful load, safety, emissions, conventional features, and efficiency. I would estimate a Prius is at least 50% more expensive to manufacture and support for 10 years than its gas only equivalent, and that cost should have leveled out by now in view of the Prius production quantity. A key related concept is that it is comparatively easy to deliver a low-volume prototype, as compared to delivering a large scale product like the Prius that meets all the above requirements.

In conclusion, I would like to suggest we may have no "silver bullet(s)" for alternative vehicle fuels in California, leaving us with conservation as the principal solution. (depression and mega-inflation which had just a taste of 25 years ago we will not regard as an option).

Hybrid car technology has a clear advantage, and although the theoretical models and experimental data vary as to how much efficiency improvement can be expected, it is clearly 3 to 4 times. If we proliferate this technology quickly, at least as good as Toyota's Prius, the Gold Standard, we can make a major short term (ie ten years) contribution to reducing energy usage, imports thereof, and green house gas emissions.

As presented in the Land Use Commission workshop on September 22, there are very effective ways to design Cities that require less automobile use. However there is one big problem, in that a lot of people do not like high-density multi-use city design. They often in California prefer the "gated community" with a Lexis in the garage (thrown in for free by the developer to offset the 100 mile a day commute), where you have no choice but to drive.

Personally, I have migrated from Silicon Valley Suburbia to San Francisco, and I now adore the sense of community, and efficient living, including being able to walk to most anywhere I need to go. But dragging my friends up to visit from suburbia can only be likened to dragging a cat into the swimming pool. Conversion to efficient living in California will not be easy, and please, we have an easy climate here, so we have few excuses.

Lastly, I would like to remind everyone that our Country and the World is a Free Market Economy. The most effective way to influence life style and Energy consumption, and have an effect on the noted political and environmental issues, is to raise the price of

Energy to the Consumer. To have our President state 'we are addicted to Oil" and at the same time have a Trillion dollar Oil subsidy is ridiculous. The legislator's need to eliminate the subsidies, but the price increase needs to be passed on to the consumer. There is a good reason why all types of energy are more expensive in Europe. If we "hand cuff" the fossil energy companies, and not allow them to operate in the "free market economy", they will leave the state. California in the past has driven business out of California, and moving ahead I think we should be careful about the energy plan.

A response to the few questions I have posed above about would be greatly appreciated.

Sincerely, and God Speed,

BG

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